

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



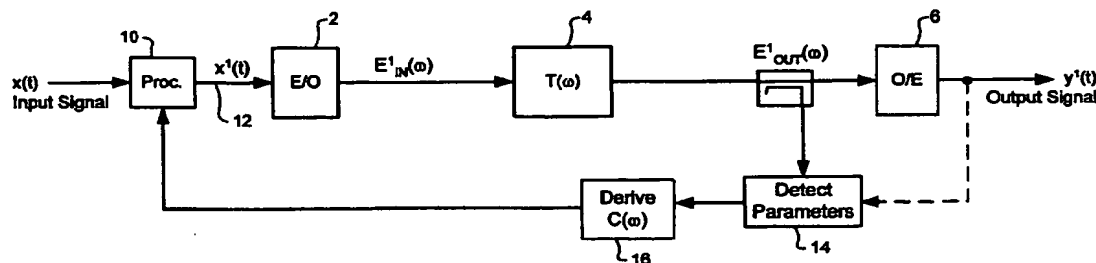
(43) International Publication Date  
15 April 2004 (15.04.2004)

PCT

(10) International Publication Number  
**WO 2004/032385 A1**

- (51) International Patent Classification<sup>7</sup>: **H04B 10/18** Maurice, S. [CA/CA]; 24 Julian Avenue, Ottawa, Ontario K1Y 0S5 (CA).
- (21) International Application Number: PCT/CA2003/001044 (74) Agent: **OGILVY RENAULT**; Suite 1600, 1981 McGill College Avenue, Montreal, Québec H3A 2Y3 (CA).
- (22) International Filing Date: 11 July 2003 (11.07.2003) (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10/262,944 3 October 2002 (03.10.2002) US
- (71) Applicant (*for all designated States except US*): **NORTEL NETWORKS LIMITED** [CA/CA]; 2351 Boulevard Alfred-Nobel, St. Laurent, Québec H4S 2A9 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): McNICOL, John [CA/CA]; 484 Highland Avenue, Ottawa, Ontario K2A 2J6 (CA). PARSONS, Kieran [CA/CA]; 73 Leonard Avenue, Ottawa, Ontario K1S 4V5 (CA). STRAWCZYNSKI, Leo [CA/CA]; 479 Highland Avenue, Ottawa, Ontario K2A 2J5 (CA). ROBERTS, Kim, B. [CA/CA]; 10 Mission Inn Grove, Nepean, Ontario K2R 1C6 (CA). O'SULLIVAN,
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: OPTICAL DISPERSION COMPENSATION IN THE ELECTRICAL DOMAIN IN AN OPTICAL COMMUNICATIONS SYSTEM



(57) Abstract: Optical dispersion imposed on a communications signal conveyed through an optical communications system is compensated by modulating the communications signal in the electrical domain. A compensation function is determined that substantially mitigates the chromatic dispersion. The communications signal is then modulated in the electrical domain using the compensation function. In preferred embodiments, compensation is implemented in the transmitter, using a look-up-table and digital-to-analog converter to generate an electrical predistorted signal. The electrical predistorted signal is then used to modulate an optical source to generate a corresponding predistorted optical signal for transmission through the optical communications system.

WO 2004/032385 A1